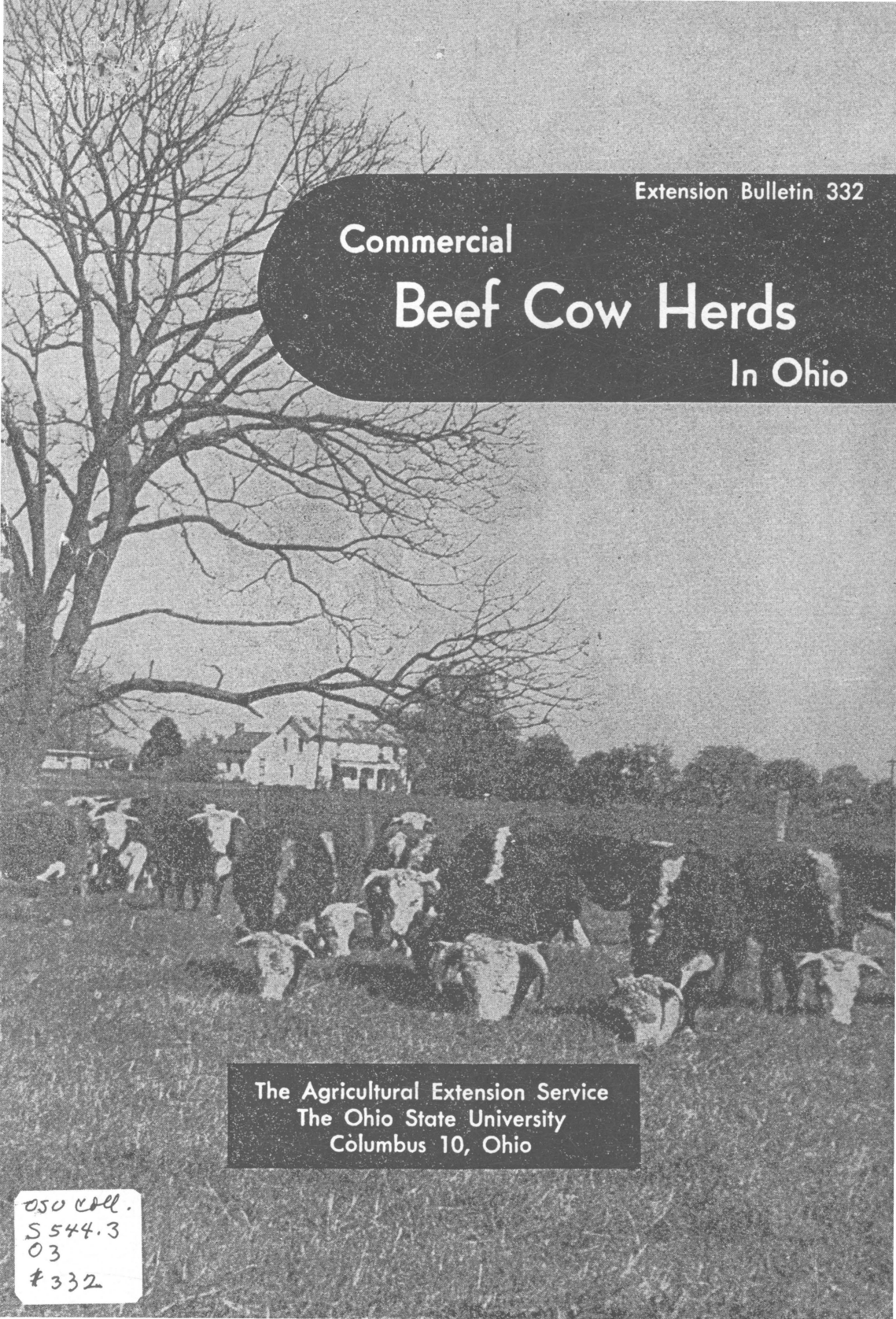

Extension Bulletin 332

Commercial Beef Cow Herds In Ohio

The Agricultural Extension Service
The Ohio State University
Columbus 10, Ohio

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Table of Contents

This bulletin is intended primarily for beginners and the less experienced. It points the way to acquiring cattle "know-how." The more experienced will find it interesting and useful.

Commercial Beef Cow Herds in Ohio

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AMERICA'S change from farming with horses to tractors has produced tremendous economic shifts. This change released about 100 million acres of land—more than five times the area of all crop land in Ohio—to be used for other purposes than growing horse feed. This is most important to the public and the beef cattle industry.

Since the change has come about, most crop yields, especially grain, have moved upward. In the years ahead, feed required for additional numbers of livestock to feed more people must come from further increases in yields per acre and utilization of roughages now unused. Obviously, the increase in total farm output from higher yields and greater use of roughage will not come about as easily as when decreased horse numbers released 100 million acres of land.

Economic shifts and wise use of land and roughage make a place for more commercial beef cow herds in all parts of Ohio.

West Will Have Fewer Surplus Feeder Cattle

As human population increases throughout the United States, currently at the rate of 2¼ million people per year, demand grows for more meat animals.

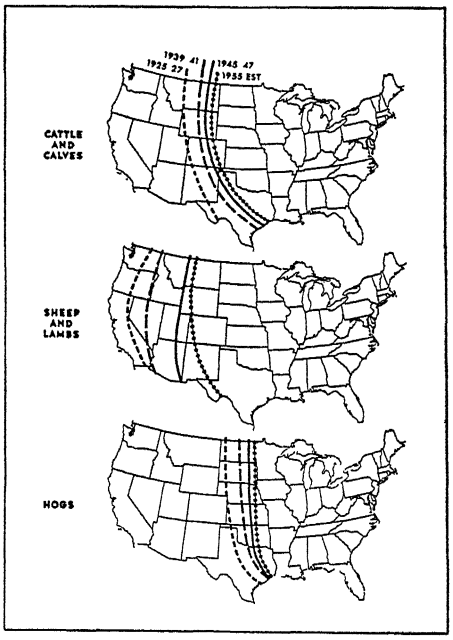
Population increase percentage-wise has been greatest on the Pacific coast. It amounts to nearly two-thirds in the last 25 years in the twelve western states which include Texas. Livestock slaughter for local consumption has nearly doubled in this area during the same period. This area includes much of the great range cattle country.

The West historically has been the great surplus cattle producing area. It has been the principal source of feeder cattle for the cornbelt and Ohio feedlots.

As demand for cattle for slaughter and consumption in the West increased, the number for shipment to the cornbelt decreased percentage-wise. This in spite of many improvements in production efficiency that stepped up the carrying capacity of range lands. It seems reasonable to assume that ranchers will continue to expand cattle numbers by additional improvement in management. Also to assume that cattle slaughter will increase to meet the western area demand.

Demand for meat and slaughter increased at a faster rate than

expansion of cattle numbers in the past 30 years. The net result in the future will be even fewer surplus cattle for shipping east. Cornbelt feeders are competing for a dwindling supply of feeders from the West which tends to work to their disadvantage.



Line of west-east movement—approximate geographic boundries to which Western packer-buyers must come inland to buy the livestock slaughtered in 12 Western states.

The accompanying maps illustrate the west-east movement of packer-buyers supplying meat for the western states.

The following paragraph is taken from a detailed study of livestock shifts in twelve western states by personnel of the U. S. department of agriculture and the experiment stations in each of the twelve states.

"If we accept the assumption that the total numbers of potential meat consumers in the West may increase from 26,500,000 in 1948 to approximately 30,000,000 by 1955, and that similar economic influences that have existed from 1925 to 1948, will prevail in the intervening years, up to and including 1955 then it is likely that about 1,200,000,000 added pounds of western meat animals over and above that required by western plants in 1948 may be needed to meeet the increases in western demand for meat by 1955. Or, in terms of live weight equivalents this means that an additional head count of 800,000 cattle, 375,000 calves, 1,100,000 hogs, and 1,000,000 sheep and lambs will be needed for slaughter by western plants to meet the demand of the growing population in the West."

The West does not produce an inexhaustable supply of livestock.

South Is Becoming A Beef Cattle Country

For more than a decade an increasing number of Ohio cattle feeders have turned to the South for feeder cattle. Virginia, West Virginia, and Kentucky provide the largest numbers. The South seems destined to become an increasingly important source of feeder cattle because of certain production advantages.

It is reasonable to assume that more grass-fat butcher cattle for slaughter may come from parts of this area too. The first rush

of expansion is over, however. In the future, land and crop improvement must precede increased cattle numbers. Future progress will be slow but certain.

Is This the Right Time To Get into Beef Breeding?

Deciding when to get into the beef cattle breeding business is rather simple. The decision should not be based on the price level of beef cattle alone. The cropping system followed in operating a farm is a better guide. If the farm is operated with a maximum of grain and a minimum of pasture, sod crops, and roughage, one had better consider commercial cattle feeding. On the other hand if the farm is operated with a maximum of pasture and roughage and a minimum of grain, or a balance between the two, a beef cow herd may be better suited.

If you haven't started in the business, get in when you are interested, and are willing to learn the know-how; and intend to operate your farm to produce the kind of feed a beef cow herd uses to best advantage. When you have met these three qualifications you can say, "Yes, now is the time to get in." If you can't meet these qualifications, now is not the time.

It is unsound to get in or stay out of a farm enterprise because the current price is high or low. It is bad economics to figure the best-paying livestock enterprise at a given time and jump in that direction. Price and other factors over a period of time are most important. All farm-income sources have their ups and downs in price at the market place.

It is smart management for most operators to diversify their sources of income—then to cut back or expand in the direction dictated by price rather than to go all out in one direction. Only a few operators have profitably outguessed short trends and made money by shifting from one kind of livestock to another.

Cost Favors Home-Raised Calves

The statement that the West breeds the cattle, the cornbelt fattens them, and the East consumes the beef is waning in importance as population shifts. Production and marketing practices also are shifting rapidly.

Comparative costs are such that many Ohio farmers are producing feeders at lower cost and less financial risk than cattle can be secured from outside sources. The comment that we can secure feeders from the West cheaper than we can produce them in Ohio lacks facts to support it, especially in the past decade. For that matter, facts were lacking in the thirties, too, when the price of feeder cattle was unusually low.

In making a decision on whether it's cheaper to buy western feeder calves weighing about 450 pounds or to raise your own, it is

important to consider the system of cropping being followed and the labor situation. The kind of feed required to fatten steers in the feed lot differs from the feed required by the cow herd. In short, steers and beef cows do not compete for the same feed. Maintaining the cow herd on pasture and the coarser roughages less suited to the fattening process and finishing the calves on grain and roughages is a happy combination to obtain more income from the total grain and roughage produced.

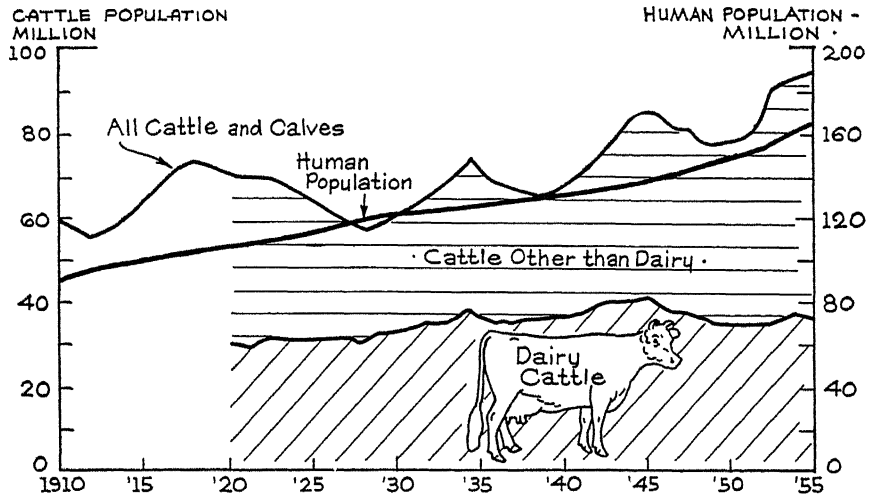
Feeders should ask themselves "should we continue to depend upon Western ranchmen when a different system of management offers so many profitable advantages?"

Will the Beef Cattle Business Be Overdone?

There is always a possibility that any business will be overdone. The beef cattle business is no exception—at least, on a temporary basis. Beef cattle prices have been favorable by comparison with other livestock prices since World War II. This has been brought on by strong purchasing power—reflected in demand for red meat. Prices of beef cattle have dropped in recent years and are more in line with the prices of other livestock. Over a long period beef cattle prices will stay as favorable as the farm price of other kinds of livestock or livestock products.

Cattle on Farms and Total Human Population in U. S.

January 1, 1910-1955



Population increases have made the export-import movement of beef of less importance, percentage wise, than it was a few decades ago. Any imports of beef or meat affect the beef cattle business adversely.

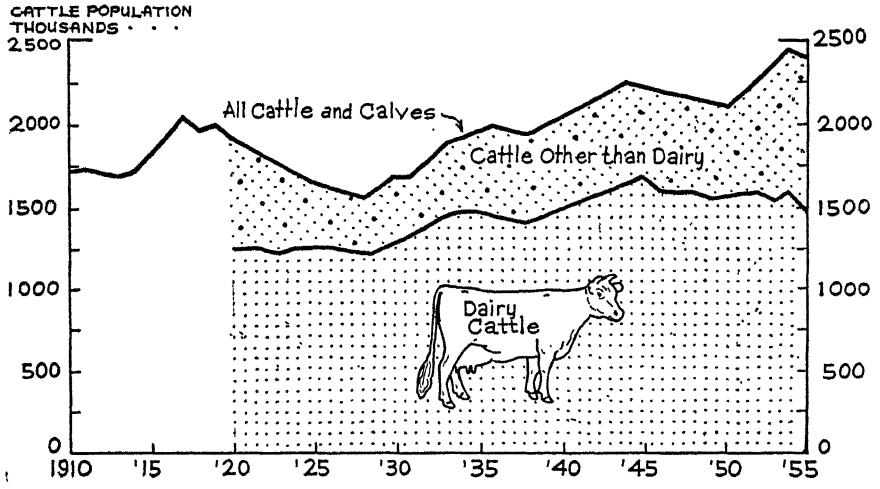
The accompanying chart gives trends since 1920 in numbers of all cattle and calves, dairy cattle, and cattle other than dairy. Difference in numbers between the two is taken as the trend in beef cattle. Population growth also is shown on the chart. Note that rate of population increase is faster than the increase in beef cattle numbers. Measured in terms of numbers of people and numbers of cattle alone, demand will continue strong.

Since the Civil War cattle numbers have increased and decreased in rather regular cycles, running from 12 to 14 years. Major economic trends tend to shorten or lengthen the cycles. The beef cattle cycle is growing shorter in recent years. Cattle numbers dipped from a high of near 85.6 million in 1945 to near 77 million in 1949. Since 1949, numbers have been increasing rapidly. Economists estimate over 95 million head on January 1, 1955. This is a four year down-swing in cattle numbers followed by a six year upswing in numbers. Total cattle numbers may level off for a year or two. There are more cattle in the United States now than at any time in history.

The accompanying chart shows the trend in Ohio of all cattle and calves, all dairy cattle and cattle (largely beef) other than dairy. The chart indicates a steady nine year drop in numbers of all cattle following the close of World War I to 1928. The next three years dairy cattle numbers increased faster than beef cattle numbers. Since 1931 the chart indicates that beef cattle numbers have increased faster than dairy cattle numbers.

Cattle on Farms in Ohio

January 1, 1910-1955



Grass and Roughage—Basis for Beef Cattle Farming

Nature made the beef cow a grass and roughage eater. Grass sods provide maximum soil conservation with a minimum of soil depletion and erosion. A commercial beef cow herd producing calves to be sold either as feeders or fattened on the farm will utilize roughage of this kind efficiently.

To make best use of grass a long pasture season is a must. Grass is cheap, nutritious, and a well balanced beef cow feed. It requires no annual seeeding and harvest expense. It reduces the rotated area, field labor, and operating expense involved in crop operations. Net income from pasture acres compares favorably with returns on small grains, soy beans, or hay crops.

The choice of grasses depends upon the productive capacity of the soil on which the forage is to be grown. It will not be the same grass on every field on every Ohio farm.

In winter, beef cows will utilize stover, cereal straws, silage, hay and gleanings from the stubble fields efficiently. They will make use of much low-quality roughage. Farmers who harvest and store the best quality roughage to combine with the coarser material for winter use save on feed bills.

One of the most serious economic wastes in current Ohio farming is in the large amounts of stover and cereal straws now left in the fields. These crop residues contain large quantities of feed nutrients—approximately ½ in the case of oats, ⅓ in the case of corn that beef cattle could profitably utilize.

The forage harvester, silo and new knowledge of balancing rations warrants a reconsideration of utilizing these products for feeding beef animals. Such feeds are best suited to wintering beef cow herds.

Beef cows getting plenty of roughage need no grain or supplements of any kind to perform their function. Thus, grain goes for other income producing purposes.

Many Factors Encourage More Ohio Beef Cow Herds

As Ohio becomes more industrialized competition for labor increases. The price for labor is higher. Farmers will move to reduce the labor load and expense.

Ohio is located between the large beef consuming centers of eastern United States and the great breeding and fattening areas of the West. Ohio consumes about twice as much beef as is produced in the state. Nearness to consumers is an advantage.

Freight rates, handling charges, commissions, shrinkage, and risk add materially to the costs of feeder cattle from areas outside the state. These costs can be avoided.

The part time farmer with a minimum of time and labor for field work and chores can keep machinery cost and operating expenses to a minimum with beef cows.

Many Ohio farmers planning to maintain a high percentage of their land in sod crops will find the beef cow a practical answer for converting grass into cash.

The number of cows in a herd has but little effect on the overhead expenses involved in the operations. In this respect the commercial beef cow herd differs from most livestock enterprises.

Older farmers interested in curtailing amount of field work and keeping winter chores to a minimum can do so by upping sod acres and adding beef cows.

Young farmers and under-financed farmers interested in beef cattle and not in a position to carry the higher risk of feeding steers may find beef cow herds suited to their needs.

Some Considerations in Getting Started

The breed is less important than management in making a success of commercial beef cattle production. For generations cattlemen have debated the merits and shortcomings of the various beef breeds and have constantly tried to improve their favorite breeds. The debate will continue. The breed you like best is one factor to consider.

If you are a beginner, there are some generally recognized breed differences you should study. These differences include mature size, milking ability, carcass quality, ruggedness, foraging ability, early maturity, polled characteristic, temperment, and over-the-scale prices packers have paid.

These differences are of less importance to ultimate success than management. Success depends more on getting a high percentage calf crop to marketable age, producing quality cattle, conformation of the breeding animals, utilizing cheap roughage for growth and maintenance, reducing overhead expense, providing inexpensive shelter, breeding for rapid and efficient gains, breeding at the right season and preventing losses from disease.

There is more difference in performance among individuals within a breed than between breeds. Success comes through the selection of good foundation stock and a continued effort to improve them using proper methods of culling, feeding, management, marketing, and progressively better bulls.

Breeding Purebred Beef Cattle Is a Specialized Business

Breeding purebred beef cattle is highly specialized and competitive. Success may come slowly or not at all with many disappointments along the way. Capital investment is high and operating methods are expensive. Success depends as much on good salesmanship as in being able to produce cattle cheaply. A measure of achievement, personal satisfaction, and some financial reward spur the purebred breeder on.

As a beginner, inexperienced and underfinanced, first acquire the skill and know-how of handling beef cattle. Use good grade

females or ordinary purebred females before you launch into the business extensively. Purebred beef cattle breeding is a business a person should grow into. Learn and profit from your own experiences and observe closely the methods of successful operators.

Registered vs. Grades for Commercial Herds

A registered animal guarantees nothing more than blood relationship to previously registered ancestry. Such animals are known generally as purebreds.

Set your sights at the level of a productive purebred herd if you are a breeder. Perhaps you aren't planning to specialize in the purebred business; but cattle of good breeding will reproduce their kind and be more profitable in the end.

Purebred beef cattle eat no more than grades and can be handled commercially the same way. Purebreds require no more housing or attention than do grade cattle.

Purebred females cost more, so original investment is higher and therefore the risks are higher.

Once you recover original investment risk is no greater. Maintaining registrations requires some time and expense; but this is a small amount to pay for the advantage you gain. Sales of purebred cattle for breeding purposes which bring prices above what the packer pays will offset the cost of maintaining productive purebreds.

Type Is Too Often Misunderstood

"Beef type is the sum total of all the characteristics that go to make a beef animal best adapted to the specific purpose for which it is intended."

Specific purpose of beef cattle is to produce meat for human consumption. This indicates the kind of cattle to breed.

That definition applies to every phase of production, processing, and consumption. It embraces the work of the purebred breeder, the commercial breeder, the cattle feeder, the packer, the wholesaler, and the retailer. It also interests the consumer.

The word "type" is used in a narrow sense too often. It becomes confused with breed characteristics or a single part of an animal. For instance, either the animal with the shortest legs or is shortest coupled may be called the correct "type." Neither characteristic is that important in the true meaning of "type." A beef animal may be both short-legged and short-coupled but may not be best adapted for making beef.

Currently the importance of size is widely discussed in relation to type. Preference of slaughterers for lightweight slaughter cattle emphasizes one angle of size. Retailers shy away from heavy carcasses primarily because of excess trim or tallow waste—the item that ups yield to the packer. Consumer demand for more red meat and less tallow is still another factor. The feeder wants rapid daily gains at the least possible cost.

The breeder-feeder must decide whether it will be more profitable to produce a big calf or a small yearling or whether it is more profitable to produce a large yearling or a small two-year old. Age is a factor. The ultimate goal is maximum weight for age—yielding a desirable carcass—produced as cheaply as possible.

Solve Management Problems When You Begin

Management should be studied before beginning to breed cattle. Buying heifer calves in the fall for the foundation herd avoids many difficulties. A mistake beginners often make is to buy bred heifers or dry cows, usually on a price basis, without knowing anything about the cattle except what the eye can see. Such cattle usually appear on the markets in large numbers in the fall of the year.

These cattle may be culls from another breeder's herd. Some or all of them may be bred—but no one knows when the calves are due. No one knows anything about the bulls that were used—whether they were good or poor. Health of the herd from which these animals came is an unknown.

If some females are bred before purchase and the remainder bred later calves will come over a long period. Management becomes more complicated. Older open heifers bought in the fall and bred at once, calve at the wrong season of the year for best management. This problem will remain in succeeding years and may become progressively worse. If the heifers are held open until the next summer and bred then, the first calf crop is ready for market no sooner than if the start had been made with calves.

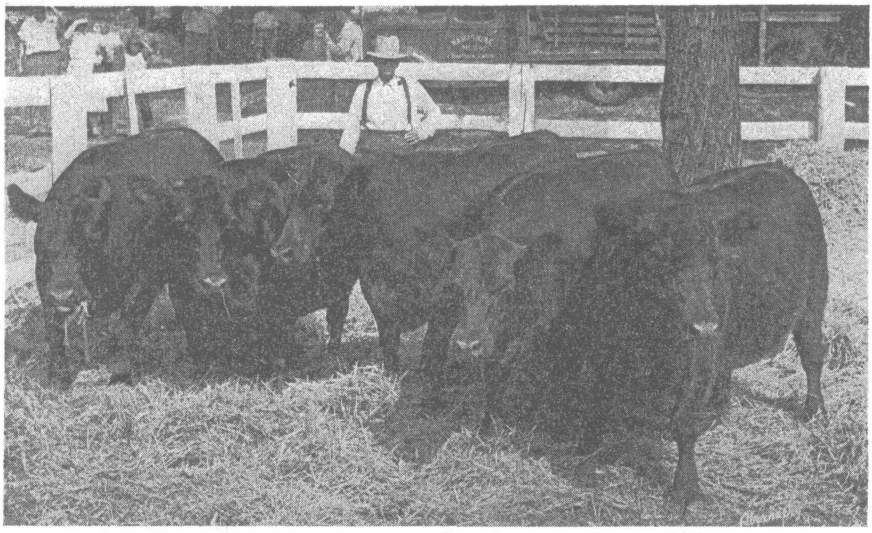
A wise operator keeps these management factors under his control from the beginning. Disgust over heifers that are said not to have been bred but are in calf, calves coming at the wrong season of the year, and disease are major reasons why farmers quit the beef breeding business.

There are Buyers for All Grades of Feeder Cattle

Commercial cattle feeders, those who buy feeder cattle, add weight and finish over a period of months, and sell fat cattle—conduct a specialized operation. They plan a cropping pattern to provide more corn, less pasture, and less hay. They give less attention to quality of roughage or use by-product roughages, largely for bedding.

Beef cattle breeders are chiefly concerned with a long pasture season for the beef cow herd and large quantities of good roughage for winter use. They invest in a foundation herd and center skill on production problems and market more or less seasonally.

A feeder buys into the business at one season, then sells out a few months later, and prepares to start all over again. He is extremely price conscious, since his success depends on shrewd buying and selling as well as feedlot skill.



A combination of choice breeding, plenty of good feed and know-how.
(Bred and fed by Gus Titus, Springfield, Ohio).

Individual feeders have different ideas about breed, age, weight, sex, length of feeding, season of buying, time of selling, grade of feeders, methods of feeding, rations, degree of finish and methods of marketing.

Some feeders refuse to feed any grade of cattle but the best. Others buy only the cheapest or lowest grades. Sometimes the cheaper cattle make the most profit in comercial feeding operations, because the original producer took less for his effort.

Trend of the current market often determines what age and grade of cattle a feeder buys.

These Practices Make for Success

Produce Choice Calves for Feet Lot

Cattlemen producing feeder calves for their own feed lots have everything to gain in breeding feeders of choice grade. A choice calf going into the feed lot in the fall after weaning provides a more valuable animal at the time. Up to this point it has returned more money for the keep of its dam. Choice calves net the most income for the feed given the cow.

A choice steer eats no more than his poorly-bred feedlot mate and will add weight no less efficiently on the feed consumed. The difference, if any, tends to favor the better-bred steer.

There is a significant difference at market time. The choice steer outsells his medium companion, because he will produce a more valuable carcass. Thus, if you are a breeder of choice cattle and fatten your own feeders for market, you will sell the feed the

animals ate for more money. This difference more than pays for the higher investment in a good beef cow herd. Better bred cattle on an average will return more money than poorly bred cattle.

Choice Bred Ohio Feeder Calves Sell for More Money

The value buyers have placed on the different grades of feeder calves pooled, graded, and sold through sales in southeastern Ohio parallels the quotations on terminal markets. Since the price level changes yearly, the spread in price by grades is more important.

The price spread between the choice grade and medium grade calves was $7.76 per hundred. On a 450-pound calf this difference means $34.92 a head. This is $349.20 more to the producer annually on a 10-calf herd. While the spread is not always this large, it's always important. On common grade cattle the spread will be $10 a hundred or more.

It requires no more time, feed, shelter, labor, or overhead expense to produce the choice grade calf than the medium calf. It requires a slightly larger investment in the beef cow herd and service of a choice bred bull. Breeding and developing bulls on the farm can greatly reduce the cost of a good bull.

Big difference in income is a result of more quality in the breeding herd. This added income is part of the incentive and reward for using a good bull. Choice grade cows bred to a choice bull should produce a high percentage of calves that will grade choice, some fancy, and none less than good.

Buyers bid on the heifer calves and bull calves and steer calves with similar price differences as to grade. Bull calves sold on the same southeastern Ohio feeder calf markets returned their owners $22.20 less per head on an average than steer calves.

These sale records indicate that the dollar returns from yearling feeder steers above returns from the same grade steer calves is too small. It raises the question of why not produce more feeder calves and fewer yearlings?

Make a 100 Percent Calf Crop the Goal

The only income a beef cow produces each year is the value of her calf. If she fails to raise a calf, the feed she ate is gone. Cull non-breeders as soon as they can be identified. Prepare them for market to the best advantage. Remove slow breeders and those non-breeders as soon as they can be identified. Prepare them for market to take advantage of short supplies of killer cows. The end of the pasture season usually brings hurried shipments of cull cows and relatively low prices.

Keep only females that conceive readily and deliver strong calves with little assistance. Plan to keep sure breeders in the herd for ten years or until their teeth fail. Mature cows usually perform better than heifers, which need more assistance at calving time. You can tolerate calving difficulties with first-calf heifers.

An Ohio study covering all beef breeds, small and large herds with calving all seasons of the year, showed an average calf crop of 96.4 percent. Never be 'satisfied' with less than this average. Some producers raise a calf from each cow nearly every year. If the calf crop drops to less than 90 percent it is too low.

Safeguarding the health of the herd, proper care at calving time, proper culling, and using a bull known to be a breeder will do much to insure a high percentage calf crop.

Vaccinate Heifer Calves to Guard Against Bangs Disease

Brucellosis (Bangs disease) is a hazard against which you must guard in every possible manner. Once in a beef cow herd, it is difficult and expensive to eliminate. If a cow slips a calf there is no income from that cow that year. Her future usefulness is questionable.

Buy only heifer calves officially tested for brucellosis and subject to a retest within 30 days. Officially vaccinate the heifer calves if they pass both tests. Use this plan even though heifers may be grade and you bought them at over-the-scale prices. Watch the heifers closely at breeding and calving times. At the first sign of trouble, isolate the heifer and immediately consult a veterinarian.

As a safeguard retest each cow after calving. Remove all suspicious cows from the herd. No one can afford to compromise or live with this disease.

One of the chief reasons for recommending that prospective breeders begin with heifer calves is to take advantage of vaccinating the calves. A breeder is then better protected against chances that Bangs disease will ruin the herd.

Spring Calves Simplify Management

Expense of keeping the beef cow a year and her calf to weaning age is the cost of the calf. Experience teaches spring calves fit more cheap management practices than do calves born at any other season of the year.

Cows settle with calf more readily when they have good pasture than at any other time. Breeding in June when Ohio pastures are at their best takes advantage of this fact and sets the time of calving at mid March and April. This may be an important factor in getting a larger percentage calf crop. Calves will be grouped nearer the same age.

Cows can drop spring calves outdoors as weather permits away from buildings to help reduce the health hazard. Dry cows can be wintered with less feed than cows with calves. Fall and winter calves consume more grain and harvested feed and will be more expensive to produce.

If you winter cows and calves together, you may have two calf crops competing for space and shelter for a few months. It is best

to have this overlapping occur when cows and new calves can be out in the field. The previous calf crop is in the feed lot. Spring calves reduce total labor load.

While most cattlemen prefer spring-dropped calves, adapting the cattle breeding program to all the operation on a general farm may bring the calving period at other seasons. Winter calves and their nursing cows require more grain feed. Production costs will increase accordingly.

A skilled cattleman can produce better than one calf crop per year. This can be done by breeding cows as soon as possible after calving regardless of other considerations.

To gain time, some successful Ohio operators have raised 10 calf crops in 8 years. This represents the ultimate in management in one direction but may be offset by other costs. Others have approximated this plan. It is not recommended but reserved for the more specialized operator.

How To Start a Beef Breeding Herd

Start at a safe financial level. Keep the business as near liquid as possible. It is possible to buy range bred heifer calves of satisfactory breeding in the fall at an over-the-scale market price, rather than by the head.

If you are interested in this plan, buy well-grown heifer calves. Buy more heifers than you want for brood cows. By mid-winter, cull the herd and fatten the culls for a June market. The market for fat heifers is usually good in June.

By doubling the weight of each heifer, the original investment in 2 heifers can often be regained by sale of one. Save enough to permit more culling later.

A breeder who starts with grade heifers, should be on the lookout for a few good registered females. Add them to the herd as a foundation for developing a purebred herd. Buy heifers of uniform breeding, to get more uniformity in the calf crop.

Start with Heifer Calves

It is safer to grow into the beef breeding business learning the know-how as heifers develop. If beginners buy into the business with cows or cows and calves it may mean creating management problems difficult to overcome. Disease, slow breeders, poor doers, culls, cows bred to calve at the wrong time and strung-out calvings, are some of the troubles.

A beginner who starts with heifers has the opportunity of keeping more of the factors of successful production under his control. Investment in cash is less. Heifers will grow to maturity on roughage without competing much for grain. It does take longer until there is something to sell.

The number of heifers of good breeding from which to choose is largest in the fall. Price is most favorable then, too.

Wintering Beef Heifer Calves 7 to 9 Months of Age

Heifer calves for future breeding should be wintered to grow well and not to fatten. It will be cheaper in the long run to grow them well than to delay their development and run into management problems by breeding too late. Feeding young breeding stock is one place where it pays to be a little extravagant.

Use either corn or grass silage and quality legume mixed hay as the basic ration. Feed calves all they will eat.

Add ½ pound of cottonseed or soybean meal for each heifer daily with corn silage. If hay is of poor quality, add 1 pound of protein supplement per day. Full feed the hay. Limit corn silage to half a ration to encourage increased hay consumption. An average amount for wintering one heifer calf is 1400 pounds of legume mixed hay, 2000 pounds of corn silage, and 100 pounds of protein supplement.

No additional protein is necessary with grass silage but add 2 pounds of grain daily for each heifer. Use shelled corn, corn and cob meal, or whole oats in any proportion that is most readily available and least expensive.

On farms where no silage is available, legume mixed hay, corn, and oats will give good results. Feed a full feed of hay plus 2 pounds of grain daily. Add ½ pound of protein daily if the quality of the hay is not good.

With any of these rations grain equivalent to 6 bushels of corn is sufficient for each heifer all winter. Each heifer will need 100 pounds of protein supplement.

Heifers fed these rations should gain 1 to 1½ pounds daily. They will grow rapidly on grass the following summer.

It is poor management to limit the quantity or quality of roughage and try to make up the difference with more protein and more grain.

Two Systems of Mating

Pasture breeding or allowing the bull to run with the cows during the breeding season usually is more desirable for the commercial cattleman. It requires less time, less labor, and reduces the chance of missing cows when in heat.

Watch closely to see that cows are being settled and are not returning for repeated services. Failure here can delay breeding and upset the best management plan not only for the year ahead, but for several years. Poor breeding performance, whether caused by the cow or bull, will make the breeding season gradually grow later or string out over the year. If you permit this year after year, it will hamper herd management and increase cost.

Pasture breeding in June settles cows more readily and brings next year's calf crop at the right season.

Remove the bull from the herd before heifers reach 6 months of age, and keep him out until they are weaned to prevent any heifers from being bred. Some six-month-old heifers will breed.

Hand mating in a small field or keeping the bull away from the cows all the time fits the program of a registered cattle breeder but is less practical for most commercial breeders. A purebred breeder's needs are different. He may breed any season of the year or time the breeding dates of individual cows to fit sale dates or various classifications for show. He may have a number of bulls to mate with various cows.

Some purebred breeders put up with breeding problems because of the value of some shy breeding animals which neither they nor the commercial breeders can affort to tolerate. Hand-mating provides the exact calendar dates a registered breeder needs for accuracy at registration time. It fixes time for calving more accurately so he can give special attention to valuable animals. It also provides more accurate information on whether the cows are being settled.

Breed for Spring Calves

It is good management to have calves bunched closely in age and to have them come 30 days to 6 weeks before full pasture season. Cows on winter feed will give enough milk in the spring for a small calf. When a cow goes on grass she will milk more. By then the calf is large enough to take it.

Put the bull with the mature cows on June 1. Breed heifers the first time a month late in order to gain age advantage. This time can be recovered in succeeding breedings. The first calves will arrive about March 15.

Cattlemen will observe that some heifers or cows do not breed or that they are late in settling. As soon as this is discovered, decide whether to fit the slow breeders for market at once or to wait

until they calve the next year. Slow breeders are not good foundation cows.

By July 1, start breeding yearling heifers. They should be 17 to 19 months of age when bred and will calve at 26 to 28 months of age, starting about April 15.

Wintering Bred Beef Heifers

Weather and condition of the heifers are guides to fall management of bred yearling heifers. The winter feeding program ordinarily will begin sometime between mid-November and New Year's Day. Keep heifers out of the barn utilizing the roughage in corn fields and cut-over meadows. Feeding additional roughage as required.

Heifers must be wintered for continued growth and development of unborn calves. Heifers must be in good flesh at calving time with plenty of reserve to help produce a good flow of milk for their first calf. Plenty of good hay—to provide protein, vitamins, and minerals is the chief concern.

Either corn silage or meadow crop silage, and legume mixed hay should provide the bulk of the winter ration. Use some stover and cereal straw in the forepart of the winter. A ton of quality legume-mixed hay and 2 tons of corn silage should be enough roughage to winter one bred heifer.

Add ½ pound of cottonseed meal or soybean meal daily for each heifer when feeding corn silage. Add 1 to 2 pounds of corn or oats or a mixture of the two if the heifers are thin. Limit corn silage to half a ration to encourage them to eat enough hay.

Meadow crop silage is higher in vitamins, minerals, and protein than corn silage. Heifers will neeed no additional protein with meadow crop silage and hay rations. Add 1 to 2 pounds of corn or oats or a mixture of the two as condition of heifers warrants.

Mixed legume hay and 2 pounds of corn or oats daily is satisfactory on farms where no silage is available. It will require about 1½ tons of hay per head for the winter season. Judgment as to conditions of the heifers will dictate the limit on the grain part of the ration in early winter. Increase the grain toward spring as calving season nears.

Continue to feed heifers after calving the same as before until they go to full pasture.

Get heifers and their calves away from barns and lots as early as grass is ready. Cows will increase milk flow when turned out, and should not need grain.

For the good of heifers and your pocketbook, heifers should not be too fat at calving time.

Be on Hand at Calving Time

A year's planning, feed, and expense are all at stake at calving time. A lost calf means a cow produces no income that year. Take

the necessary time and precaution. First calf heifers may require some assistance. Older cows usually require little attention. Do not disturb cows at calving time until sure they need assistance. Obtain the services of a veterinarian if you are inexperienced.

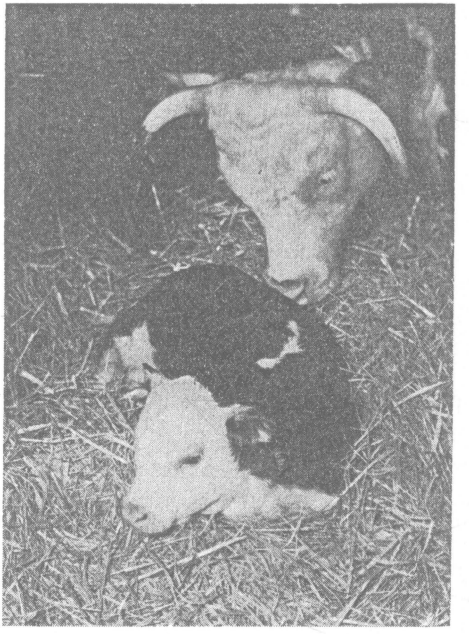
When calves are born in pastures, there seldom is any trouble with navel disease or white scours. Try to have a small blue grass pasture near buildings for early spring grazing and as a place for cows to drop their calves.

Ohio weather is often not too severe for calving outdoors after March 15. Temperatures above freezing are not harmful. April is a good month to have calves arrive. As the hour approaches for calving a cow will seek a quiet place apart from the herd. A newborn calf will be up in 15 to 20 minutes and will nurse in less than 45 minutes. Once the calf is up, dry, and full of his mother's milk, he is a vigorous fellow well on his way.

White scours—associated with cold, wet, dirty, drafty, unsanitary barns—is one of the chief causes of losing calves from disease. This accounts for failure of the breeding business on many farms. White scours appear the first 1 to 10 days, if at all, and usually cause death.

If cows are to calve indoors the stall, shed, or lot must be clean, comfortable, and well bedded. Immediately after the calf is born paint its navel with tincture of iodine to guard against infection.

Watch cows that produce too much milk for udder trouble. It may be necessary to milk them out a few times.



Calves dropped indoors require a clean, well-bedded stall.

Cull Non-Breeders

There is no place in a profitable, commercial cow herd for slow breeders no matter how good they look. Turn the bull in by the calendar the second and succeeding breeding seasons. Cull and fit any non-breeder for market.

Do not tolerate a slow breeder more than 1 year. Sell her and her offspring when the beef market is favorable. Do not complicate your management problems by trying to put up with these animals. Feeding and housing the non-performer adds expense to raising the calves other cows produce.

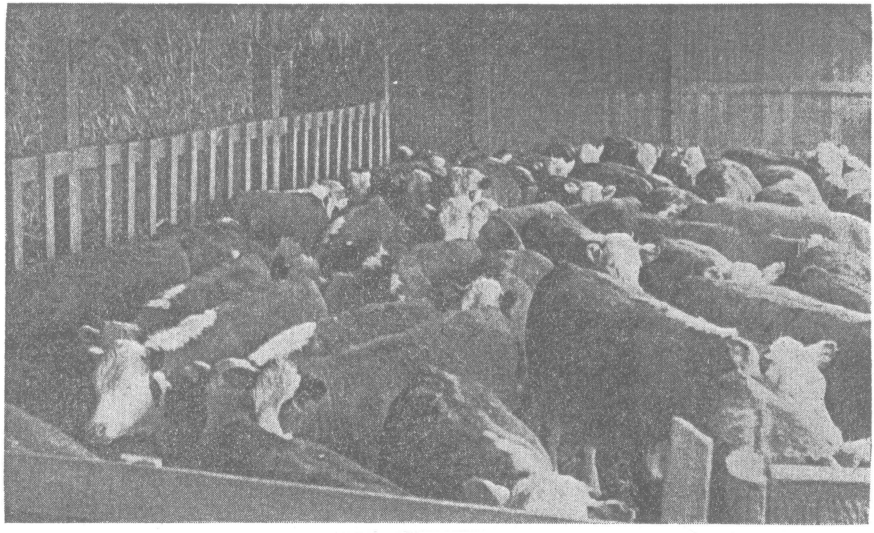
Wean Calves from October 15 to November 15

Unless pasture or other feed is good in the fall, cows may get too thin suckling calves. Calves may lose weight. Avoid this by weaning and selling calves or starting them in the feedlot according to marketing plans. Give your cow herd a chance to take on some weight in the fall. Condition of cows, pasture available, and feed supply are the best guides as to what to do. Ordinarily, it will pay to wean calves from October 15 to November 15 and let the cows glean the fields as late as possible. Too little pasture will result in a more expensive winter-feeding program. Don't short-change cows in summer.

Feeding and Marketing the Calf Crop

Use More Roughage—Less Grain in Fattening Calves

Homegrown feeder calves born in the spring, weaned in the fall, and put in dry lot as soon as they are weaned should be started at once in the fattening process. Use corn silage and legume-mixed hay as the two chief feeds. Feed all the calves will eat. Add 1½ pounds of cottonseed meal or soybean meal and 1 pound of shelled



Self-feeding roughage to choice, home-grown calves.

corn or whole oats per head daily until January. Continue feeding 1½ pounds of protein daily until you sell the calves. Increase corn 1 pound per head per month until sale time.

Handled this way the crop will be on Ohio markets in June or July at a season when this weight and finish sell to good advantage. Most short-fed yearlings and plainer grades of fat cattle have gone

to market. Grass-fat cattle have not yet started to show up in numbers.

Winter feeding simplifies the total farm management problem. Calves will be on the market ahead of hot summer weather. This plan permits carrying more cows to use the pasture for raising calves. It gets the calf crop off the farm in 15 or 16 months.

This feeding program utilizes a lot of silage and hay and less corn. It gives high dollar and pounds of beef returns per acre. Daily gains will not be as great as with full feed of corn nor will calves be as fat at market time. Cattle will gain efficiently and carry enough finish and quality to sell profitably on Ohio markets.

This plan of feeding will prove profitable year in and year out. It is flexible enough to allow changes to fit market conditions.

It May not Always Pay to Creep-Feed Calves

Use either a portable self-feeder creep or one that is stationary. Cattlemen who sell 450 to 600 pound butcher calves begin creep-feeding when calves are 4 weeks old. They sell them off the cows.

If you plan to finish your calves as 900 pound yearlings in June or July you can creep-feed all the way. Wean and place calves in the feed lot and start them on winter feed immediately. There should be no loss of weight when creep-fed calves go directly into the feedlot.

For creep feeding use all whole oats or all shelled corn according to supply. If price warrants, ½ shelled corn and ½ whole oats will be as satisfactory as either alone. No protein supplement is necessary while calves are suckling cows and eating grass. Calves will learn to eat quicker if you sprinkle a little bran over the grain. Calves usually will learn to eat when less than 30 days of age. Locate the portable creep near shade, water, or the favorite loafing place of the cows. This will tend to encourage grain consumption.

Consider the advantages of finishing and selling the calf crop in June or July out of dry lot, rather than pasturing them another summer and feeding in the fall for an early winter market.

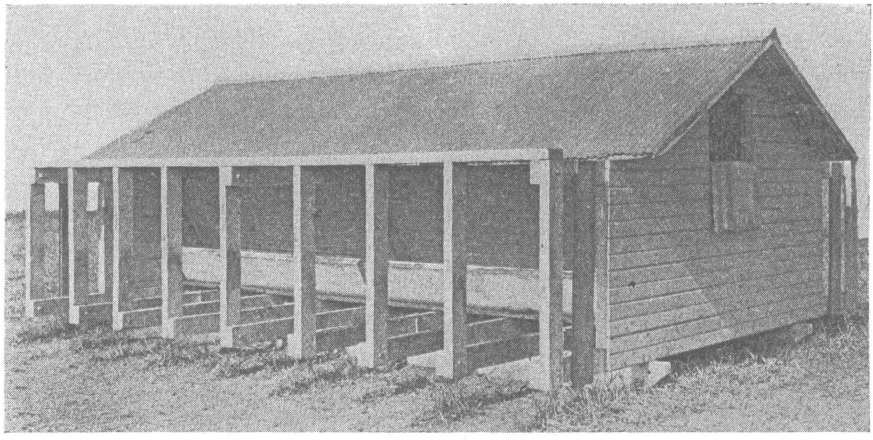
On most farms it will be more efficient and profitable to add more breeding cows to the program and utilize pasture with cows raising calves than to pasture yearlings. Cows, the new calf crop, and a crop of yearlings complicate management of fields and buildings.

Yearling heifers which graze the second summer reach an age and weight normally discounted on most markets.

If you live outside the corn area of Ohio where calves will be sold as feeder calves, it may pay to creep feed calves some years and not other years.

The feeder calf market determines whether creep feeding pays. Most feeders would rather buy well-grown, thin calves than heavier

fat calves. The producer wants to sell all the pounds of calf he can as high as he can. Pounds times price gives income. A big, fat calf may bring no more than a lighter, growthy calf. It may cost so much more to produce the fat calf that it is less profitable.



Desirable type of portable creep feeder (plans are available through county agents).

A March or April calf which gets enough milk and pasture to weigh 475 to 500 pounds by October may be more profitable than one creep-fed and weighing considerably more.

Creep feeding may be desirable and more profitable if calves are born in late summer, pasture is poor, or cows milk poorly.

If you produce feeder calves, aim for good pasture, have cows to calve to take advantage of the pasture season and milk satisfactorily rather than to try to make up losses from these factors by creep feeding.

Steers and Heifers Can Be Fed Together

You can feed steers and heifers together without any measurable loss of gain on either . Heifers will develop faster, however, than steers and will be fatter by spring. Heifers will reach a marketable finish 30 days earlier than steers.

Normally, heifers are not as popular as steers on the market, primarily because buyers discount the risk of heifers being pregnant which reduces yield. Buyers prefer heifers weighing 750 to 850 pounds. During the past decade buyers have not been as critical in this respect as formally. When to market steers to the best advantage is a question to put to market experts. It is wise sometimes to feed well bred steers beyond a June market if markets are favorable.

Larger cattle require more feed per hundred weight of gain. Generally there is more money in feeding a larger number of cattle to a light weight than in feeding fewer cattle to a heavy weight.

Pay Attention to Detail

A breeder should not rely on memory alone for performance of individual cows and their offspring. Identify each cow by neck chain or tattoo and record her age, cost, date of calving, sex of calves, weight of calves when born, weight at weaning time, ultimate disposition of the calves, and other useful information. Accumulating data yearly will help in culling and selecting replacements.

Provide Inexpensive Housing

Allow beef cows to be outdoors most of the time—even in winter. Inexperienced operators try to be good to their cattle but only add to cost of maintenance and health hazards. It is usually a mistake to confine beef breeding cattle in barns.

Beef cattle naturally grow a long thick hair coat in the fall. Many beef cattle in a more rigorous climate than Ohio's never see a barn. The most shelter they have is a thicket or windbreak. Some successful Ohio beef cattlemen do not house their cows in winter.

Use a shed or barn open to the south or east with an adjoining lot to permit cattle to be indoors or outdoors at their choice. Either a pole barn open on one side, or an L-shaped shed is adequate. Remodelled horse barns with outside lots serve the purpose. Give more attention to housing feed and saving labor in feeding than in getting the cows indoors.

Spend more of the capital investment for silos, paved lots, and labor saving equipment, and less for barns of imposing appearance and little utility.

Dehorned Calves Are Worth More

Breeders of polled cattle make a sales point out of the dehorning job their bulls perform. A cattle feeder can afford to pay half a dollar a hundred more for dehorned cattle than for the same cattle with horns at 6 or 8 months of age or older. Loss of time and feed while cattle recover from dehorning, plus the risk involved, makes the difference.

Remove horns at any season of the year, with proper precautions at fly time, such as smearing pine tar over the wounds. For best results with calves, remove horns before they are 30 days old. Since blood vessels are small then calves will loose less blood. Horns up to 3 months of age are nothing more than skin appendages and have not grown fast to the skull.

Method of Dehorning

Choose a method of dehorning and learn the technique of using it. None of these common methods is difficult to use or requires expensive equipment. Just get the job done while calves are young and easy to handle.

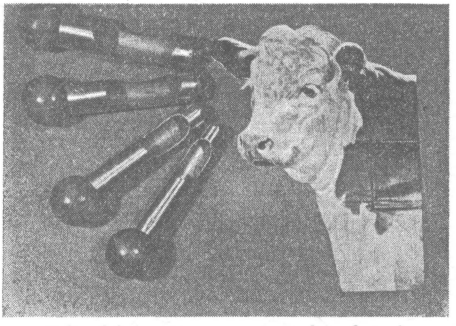
Use a saw for dehorning calves or cattle 8 months of age or older. By then the horn has set to the head and is growing tough. A clipper is easier and faster to use, but risk is greater, especially if the horn is crushed.

Dehorning calves with caustic potash or a caustic soda stick is done when calves are between 7 and 10 days of age. Clip the hair around the horn buttons and scrape the buttons until they start to bleed. Put a ring of vaseline around the area to be treated. Then, slightly moisten the potash stick and rub it over the horn buttons. A scab will form and in time drop off.

Observe these precautions. Wrap the potash stick well with cloth or paper to keep from burning your hands. Prevent the caustic from running down the calf's face or jaw. It will burn the skin. Keep treated calves from their dams for several hours and out of the rain for one day.

Dehorning calves with an elastrator involves the use of a special kind of rubber band that slips over the horn and catches from ⅛ to ¼-inch of skin. Horn will come off in about 4 weeks, but regular checks to see that bands are in place will be needed. Use an elastrator as soon as horns are large enough to hold the band—any time before the horn grows fast to the skull. Best time is when the calf is under 3 months of age and horn buttons are still appendages. An instrument for spreading bands and the bands are sold by most dealers handling livestock supplies.

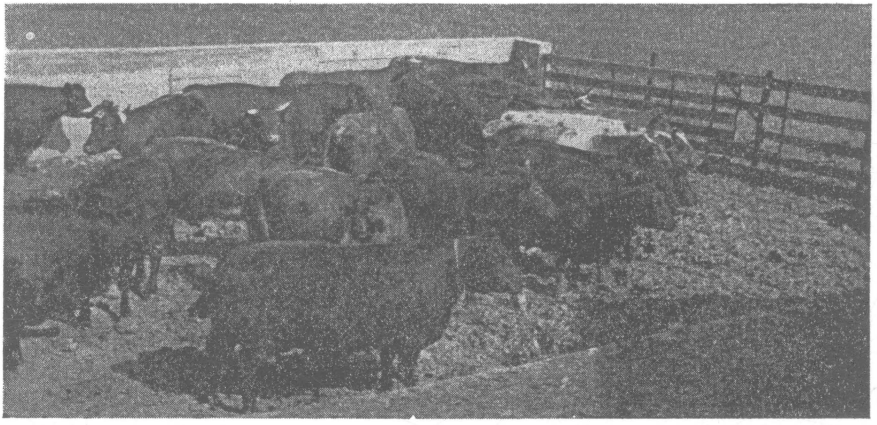
The tube dehorner provides a new method. The tube is a round, chisel-like instrument which is placed over the horn and pressed down until it cuts through the skin. A twist of the wrist and—off comes the horn. This method is easy, quick, and positive, and does a neat job. It permits dehorning any season of the year. Use an astringent to prevent bleeding and put pine tar over the wound to repel flies. Tubes come in four sizes. Use the dehorner tube on calves from 1 to 3 months of age. Bleeding will be less at this age.



Tube dehorners are a new and preferred instrument for removing horns from calves under three months old.

Castrate Under 30 Days of Age

Castrate bull calves before they are 30 days old. The job will be easier and shock will be less. Bull calves are frequently permitted to grow to six months of age before castration. Delay to that age makes the task more difficult and the risk greater. There are several methods of castrating. Select a positive method.



Brood cows thrive with exercise and little shelter.

The knife method is positive and safe if you observe ordinary cleanliness. Some cattlemen prefer to cut off the lower third of the scrotum and remove the seeds. Others prefer to slit the scrotum up and down the sides next to the legs. Make sure the cuts are low enough to insure drainage. Use Lysol or another good disinfectant to disinfect the knife, hands, and scrotum before beginning each operation. Provide clean quarters for the calves or leave them out on pasture if possible.

The elastrator or rubber band is a new device which some people think is easiest to use. The band is stretched by an instrument and slipped over the scrotum above the seeds. The band will contract and stop circulation, apparently with a minimum of pain. The lower part of the scrotum will shrivel up and come off in 4 or 5 weeks. Use the elastrator when calves are young. This method requires more time in healing than many growers want to take. It exposes the animals to infections longer than some methods.

Another method uses an instrument that pinches off the cords and leaves the seeds in the scrotum where they are absorbed. These "clamps" or "pinchers" are not satisfactory in the hands of an amateur and some professionals. Too many times the cords are not completely severed and slips occur. Staggy, feeder calves are discounted by feeder buyers, and sell for less when fattened as steers.

Bull calves that sold on a graded basis through co-operative feeder calf sales in southeastern Ohio netted their owners about $22.00 per head less than steer calves of the same weight and grade. The discount is too big for failing in a single operation any one can easily learn to perform.

Provide Loose Salt Free Choice

Beef cattle will consume about 2 pounds of salt per month. Give them loose, iodized salt free choice the year round. They will

take more salt when they are on grass than in dry lot. If you replenish the salt supply regularly every 3 or 4 days it will not be much of a chore. Block salt is much less satisfactory than loose salt and is not recommended as the only supply.

Provide Mineral Free Choice

Quality farm grains and forage contains a wide variety of minerals in varying amounts, including so-called trace minerals. Calcium and phosphorus are the two mineral elements required in largest amounts. Feeding minerals will not remedy troubles caused by feed, management, or health problems that are not being handled correctly. When you add a mineral element it will only correct trouble caused by a lack of that particular element.

Provide steamed bone meal and ground limestone made for livestock feeding free choice the year round. Mix the two half-and-half. One part salt to four parts of the mixture will increase consumption. This should not be the only salt provided. Prepare only a small supply at a time. It hardens when wet.

Maintain Cow Herds on Roughage

If there is any secret in maintaining profitable commercial beef cow herds in Ohio it is to use pasture in summer and roughage in winter.

Leave your herd in stalk fields and stubble fields in the fall until weather interferes. Gleaning the fields provides a source of feed otherwise wasted and holds down maintenance costs.

Hay and silage can be the entire ration for winter feeding. Consider a ton of good legume mixed hay the minimum amount in all winter rations, except those with grass silage. Cereal straws, stover, and corn silage lack vitamins, proteins, and minerals which hay provides. A ton of good hay fills this need.

Mature beef cows need no grain or supplements at any season, if there is enough good pasture in summer and seasonable feed in winter. In fact, mature cows will get too fat on the best pastures in summer, and a full feed of quality hay in winter, so fat that breeding and calving troubles may result. It is extravagant to full feed straight legume mixed hay, so add straws and stover to stretch the hay supply. Let cows have all they want of roughage.

Either corn or grass silage and legume mixed hay makes an excellent combination. Beef cows will get too fat if corn silage is full fed. Limit corn silage to no more than 20 pounds each per day and encourage the cows to eat more hay. The higher vitamin, mineral, and protein content of the hay insures that these needs are met. One ton of legume mixed hay and 2 tons of corn silage will winter one beef cow.

Cull and replace cows that do not keep good fleshing and do not develop and deliver strong calves on roughage rations.

A fat beef cow may be more pleasing to the eye, but she costs more to maintain and will not produce any better calves than a cow in normal flesh. In fact a fat beef cow may have trouble both at breeding and calving times.

Pasture Program for Cows

Pasture is the only feed you cannot buy and haul to the farm. It provides the cheapest and best summer feed and is needed in larger amounts and over a longer period of the year than any other feed.

Establish pastures to give near year-round-grazing and to reduce labor and costs. Do not graze the same field the year round without regard to condition. Instead, use careful management and provide more than one variety of grass. Alternate grazing areas.

If you can, give your herd access to an area planned for winter pasture in addition to winter roughage. Locate it near winter quarters for convenience and use carefully if you expect it to provide feed in spring, fall, and winter and to help solve other management problems.

Pasture growth—dry and green—adds much to the nutritional needs of beef cows. A winter pasture must have a heavy sod to withstand tramping. Permanent grass sod, with a thick, vigorous network of roots is better than legumes or ordinary, temporary meadow mixtures. You can make limited use of temporary pastures, however, even though they do not withstand as much tramping.

Improved bluegrass, orchard grass, or bromegrass make a good, permanent sod and good feed. Fit your choice of grass to the productive capacity of your soil. Areas of different grasses seeded alone will likely prove more satisfactory than mixtures because of management problems.

The value of Kentucky bluegrass for beef cows is underestimated. If properly fertilized and well managed it is highly productive in the spring and again in the fall. In many areas of Ohio it should have first consideration. It is nutritious and well liked; white clover will become a companion plant; and cows can graze reasonably early in spring. It produces well until July or August and then growth depends on the moisture supply. Growth stops if there is a long, dry spell, and the grass turns brown. Short brown bluegrass pasture is of little value; but cows will eat tall dry bluegrass readily and get considerable value from it.

Supplementing the bluegrass area by grazing a part of the meadow not needed for hay and the meadow stubble after the hay is harvested is good management for many Ohio farms.

Orchard grass can be grazed a few days earlier than bluegrass, is less palatable, more productive, has a deeper root system, and withstands dry weather in summer better than bluegrass. Orchard grass makes a vigorous early growth and should be grazed or clipped

Rotation meadows insure good grazing.

to prevent heading. Orchard grass after heading becomes woody, unpalatable, and low in feed value. The more mature it gets the more undesirable it becomes. Graze areas of orchard grass and bluegrass alternately. Keep cows in the orchard grass long enough to keep it short. Then, move cows to the bluegrass area. Alternate grazing is better than continuous grazing of both areas. Cows do not like orchard grass as well and will graze there less.

Brome grass is a desirable pasture grass for beef cows. It is well liked and long lived but difficult to seed. Seeded with alfalfa and timothy, brome grass will thicken as the others become thinner. It requires 3 years of growth before it is firmly established enough to be dependable and worthwhile. It is a heavy producer on soils which grow red clover and alfalfa. An area of brome grass to alternate with bluegrass and orchard grass along with rotation meadows would prove a good grazing program.

Seeding an early variety of timothy in a mixture of alfalfa and brome is recommended. Timothy will be of greater value the first 2 years than brome. Then likely brome grass will replace timothy.

Top growth of $\frac{2}{5}$ grass and $\frac{3}{5}$ legumes is more desirable for beef cows than straight legumes. A legume mixture without grasses has two important drawbacks. Straight legume or legume mixtures too often fail and leave a thin pasture or none at all. Also legume pastures are risky from the standpoint of death by bloat.

Since part of the area seeded may be used for hay or for silage or rotational grazing the first and later years, consider usefulness of the mixture for all these purposes. Beef cows on winter rations need the higher carbohydrate or energy value of the grass in hay

more than the increased amount of protein in straight legume hay. A half-legume, half-grass mixture harvested for hay or silage will fill both needs—if grass and legume cuttings were timely. Beef cattle like quality grass hay or grass legume-hay mixtures better than legumes alone.

While it is desirable to have some legumes in hay and pasture, it also is important and desirable to have an area in permanent grass or grasses large enough to furnish about half the needs for the herd. Manage the area to produce plenty of grass, first, and legumes, second. Apply barnyard manure in addition to the manure distributed by the grazing cows and use a mineral fertilizer containing nitrogen. Maintaining the nitrogen in soil at high level grows grass abundantly, without including too many legumes which may increase danger of bloat.

Grass Is Best Safeguard Against Bloat

Bloating is an old problem to cattlemen and one often misunderstood. Despite all theories about bloat, there still is no practical method of preventing it that will guarantee success under all conditions.

Gas which forms in the paunch faster than it can be eliminated causes bloat. It can be recognized by an expanding or swelling on the left side in the hollow just in front of the hip. It may not become serious until the same condition begins to show on the right side. Severe bloat will cause death.

Cattle in dry lot on standard beef cattle rations seldom bloat. Second and third cutting alfalfa hay or ground barley sometimes are bad offenders if cattle eat large amounts before they become used to them. Finely ground grain and overfeeding sometimes may be contributing causes, too.

Beef cattle seldom bloat seriously on any grass. Cattle that bloat on bluegrass or other grasses such as timothy or brome grass probably had an assist from some legume.

Bloating generally is more serious when beef cattle graze on succulent, tender, rapid-growing legume pasture when conditions are more favorable to rapid growth.

Plants chiefly causing bloat are legumes, ladino clover, alsike clover, alfalfa, red clover, and white clover—in about that order.

Include enough grass in meadow mixtures to insure about ⅖ grass and ⅗ legumes. Omit ladino clover entirely.

In pasturing steers provide a field of bluegrass or other grass adjacent to legume pasture fields and feed grain or cured hay. Risk lessens, but losses still may occur.

Steers turned out to graze in early summer seem to be more apt to bloat than mature beef cows. In either case, feed heavily with dry feed before you turn them out and provide salt and minerals free choice.

Many home remedies are effective bloat controls. Drenching with a pint of mineral oil gives relief quickly. Sometimes bloating is so serious when discovered that time will not permit drenching or waiting for a veterinarian. Puncturing the paunch on the left side with a knife may be the only alternative.

Selecting, Feeding and Managing Beef Bulls

Good Bull Is a Must

To develop sound judgment and skill in appraising bulls; look at as many bulls as you can. Observe the calves they produce. Then, keep the definition of correct type in mind when you select a bull.

Choose one that has quality, size, correct conformation, sound skeleton structure, sufficient quality bone. Make sure he stands straight on his feet and legs and has a wealth of natural fleshing over the back, loin, and thighs. Choose a rugged masculine bull with good temperament that is alert and active and moves like he is going some place. Get the figures on his daily rate of gain for a period of several months after weaning, if you can.

You can be reasonably sure of a bull that looks good when you see him in ordinary flesh. You cannot be sure of a bull when he is loaded with fat. He may look entirely different and be a disappointment when the fat comes off.

Select a bull that will produce calves with size as well as quality. Whether you produce calves for feeder calf sales or produce fat cattle for market, know the kind that will return most for the feed.

With adequate mutual understanding 2 or 3 small breeders can share the cost and service of a good bull rather than each use a scrub.

Use Bulls of Proven Pedigrees

Pedigree is of first concern to the breeder of registered beef cattle. Although it is of less importance to a commercial cattleman, it cannot be ignored.

Appearance of an individual bull is important. Remember, "like begets like or the likeness of an ancestor." Individuality and performance of close ancestors measure the values in a pedigree. Know the breeder of the sire and dam of a bull and the breeder of the grandsire and granddam. The two close generations of a pedigree will tell the story.

Know something of the reputation of the cattle a breeder produces, and, if possible, see as many young offspring as you can. There is a reason if too few or too many of them are lacking in certain respects. Know whether they measure up to your desires for size, conformation, ruggedness, longevity, and general usefulness. Offspring will reflect ancestry as well as the bull under consideration.

Always use a registered bull but remember that registration papers alone cannot guarantee the worth of a bull. Any bull calf sired by a previously registered bull and out of a previously registered dam can be registered except for certain minor breed regulations of little interest to commercial cattlemen. Many registered cattle inferior in type and usefulness are continued as purebreds. Some are less desirable and have no more usefulness than a grade bull from a commercial herd.

Rate of Gain a New Yardstick in Bull Selection

Over the years, price, individuality, show record, and pedigree have been the chief factors in evaluating a bull. Research recently has delved into the heredity of rate of gain and has recommended a program of breeding and testing that may prove to be important in the selection of breeding cattle, especially for the commercial breeder.

The plan calls for weighing calves at birth and again at weaning time. Both males and females to be tested receive a good growing ration in the feedlot for 6 to 7 months after weaning. In this way, growers may measure individual feedlot performance.

Females may be tested further by breeding. Bulls that gained rapidly in the feedlot may be used alternately with bulls that gained slowly. Thus breeders may measure the extent that breeding plays in transmitting rate of gain to offspring. Research found a high degree of correlation between a bull's own performance, in rate of gain in the feedlot, and the performance or rate of gain of his offspring in the feedlot.

By systematic testing and breeding of both bulls and females for faster gain and mating rapid gainers over a number of generations it may be possible to breed cattle that gain three pounds per day in the feedlot, or 50 per cent more than the average. Every feeder has noted wide variations in rate of gain between individual steers. Performance testing offers an interesting and profitable challenge to all beef cattle breeders.

Keep a Proven Bull in Service

Cattlemen will make many mistakes if they buy a yearling bull, use him for a year or two, and then replace him with another yearling bull. This plan is often prompted by a price and profit consideration—buying a young bull at or near market price, using him a couple of seasons, and then selling an older, heavier bull at a larger price, does lower the breeding cost.

This practice creates a health hazard. It may take two calf crops to establish the worth of a young bull as a breeder. If he establishes himself as a poor performer, of course, the stockyards is the place for him. On the other hand, if he is a prepotent bull—settling the cows promptly and regularly and producing highly desirable calves that grow well—his breeding ability should not be

lost. Such a bull should be retained so long as he continues to perform. It may well extend 8 to 10 years.

It is true that in a small herd using the same sire for several years may mean that good heifers must be sold rather than used for replacements. These heifers should not be bred to their own sire. The commercial man is less affected than the purebred breeder. A commercial breeder with a beef cow herd of uniform breeding who gets calves from a prepotent bull, may operate a few years without keeping any replacements. Later he can save a larger number of heifers for a couple of years.

This plan keeps more uniformity in the cow herd. As the older bull approaches the calculated end of his usefulness, the alert cattleman will have a replacement on hand. Try the young bull's ability as a breeder by use on replacement heifers. This overlapping by using a proven bull as long as possible and testing a new bull at the same time tends to guarantee success in making a change.

No Substitute for Bull Performance

Best evidence of the value of any bull is the quality and performance of his calves. Yet the bull buyer, in nearly every instance, selects from bull calves or yearlings so young they have no performance record. Price, availability, and management to be followed dictates the decision.

A breeder, as a rule, seldom parts with a good proven bull until he is too old to use. Price most likely will be beyond the reach of the commercial man if he does. Once you find a bull that is a good breeder it is best to use him as long as possible.

Do Not Overwork a Young Bull

Overworking a young bull may impair his usefulness later and seems to be a cause of temporary or semi-permanent sterility. A well-grown, 15-month-old bull can service up to 12 cows. A 2-year-old bull should provide service for as many as 24 cows and a 3-year-old bull up to 36 cows. Hand breeding will increase the number of cows a bull can breed. Year around breeding, which is less desirable for good management, will permit service to more cows.

Up-Grading Is Easy at First

Any beef bull used on dairy cows will up-grade conformation and beefiness of offspring the first generation and to a marked degree the second generation. The better the cow herd becomes, the slower the up-grading will progress. The time and money losses from inferior cattle in breeding a beef herd from dairy-cow foundation warrants consideration of starting at once with beef cows.

A commercial cattleman starting with well-bred grade beef heifers or ordinary registered beef heifers, needs a good bull to maintain level of breeding and a better bull to improve offspring.

Grade cows of good quality mated to choice purebred bulls produce desirable calves.

Most practical and effective way to upgrade any beef cow herd is to use a bull that is better than the cows.

Keep Bull in Thrifty Condition Year Around

A bull may become thin by winter and need considerable grain before the next breeding season. Shelter him in winter so he can exercise daily and can have some grass in winter as well as all summer. Do not house a bull in tight box stalls any time. Provide an adjacent lot so he can be in and out when he wishes.

A bull that is too fat or too thin is likely to be a poor breeder. A bull highly fitted or fattened may be ruined for breeding as the fattening process progresses. He is even more likely to be ruined in the letting down process that follows. It may take a year to get a fat, 2-year-old bull adjusted from a high finish on a grain ration to pasture breed successfully. Do not attempt letting a fat bull down through the breeding season.

A commercial cattleman will be wise if he refuses to buy "fat" bulls. As mentioned previously, fat tends to cover up weaknesses or at least makes them less likely to be noticed. It is easier to judge the worth of a bull in medium flesh than if too thin or too fat.

Feed Beef Bulls Moderately

Feed beef bulls to keep them in medium flesh so that they are active and vigorous. Do not have them too fat or too thin before or during the breeding season. Feed some grain and protein before heavy service, but heavy service in large pastures should not require more than half a ration of grain during the breeding season. One-half pound of grain to each 100 pound live weight should be enough. Add one pound of protein daily. Use either corn or oats or a mixture of the two for the grain. Adjust quantity of grain to suit the bull's condition and breeding demand.

No grain or protein supplement should be necessary if the bull is in good condition and breeding service is light. Accustom the bull to grazing before you put him in with cows. Otherwise he will lose weight rapidly if you have fed him grain indoors.

Feed a young bull the same rations suggested for heifers, but increase the amount. Give a mature bull the same pasture and feed as the cow herd. Special feeds are not necessary for a good breeding bull.

Pasture alone in summer is sufficient if there is enough and quality is reasonable.

Quality, legume-mixed hay in winter may be sufficient by itself. Vary a ration with some corn or grass silage or with hay. Use some cereal straws and corn stover with hay in the first part of the winter.

Good Management May Prevent Disease and Ailments

Prevention of a disease before it begins is more practical and economical in the long run than control measures when a disease is running rampant. Clean sanitation, good management, attention to detail, and plenty of quality feeds will give protection from many troubles.

Know your veterinarian and consult him at once when you suspect trouble. The earlier the diagnosis and treatment, the more successful it is likely to be.

Beef cattle are outdoor animals. Barns and barn lots become infected with disease. A wise cattleman, keeps cattle, especially young stock, out in the fields away from barns and lots as much as possible.

Be Alert To Detect Bangs Symptoms

Breeders agree that brucellosis is one of the most difficult of all cattle diseases to control. Many cattlemen have given up their breeding business completely or suffered substantial financial losses because of its ravages in their herds. Observe every known preventive measure and be quick to detect its presence in the herd before it reaches destructive proportions.

Brucellosis is commonly called Bangs disease. It is a disease of the reproductive system, caused by a contagious germ. Most infected animals abort their calves between three months and seven months of pregnancy. Bangs disease is said to cause sterility, and bulls may be infected as well as females.

There are other causes of abortion. Abortion may result from infections other than caused by Bangs disease. But, look upon every abortion with suspicion. Seldom will an accident be the cause of abortion.

Be suspicious of cows that are difficult to breed and those that do not clean readily after calving, without assistance. These troubles may be forerunners of serious difficulty. First-calf heifers are more likely to abort than older cows.

The disease apparently spreads through contact with infected animals. Humans may contract the disease. Use care when assist-

ing at calving time. Likewise, use extreme precautions when destroying an aborted fetus or afterbirth.

A blood test provides the most accurate diagnosis for Bangs disease. Isolate immediately those animals you suspect or those that abort. Remove them from the herd at once if a blood test confirms them to be infected.

Some cows may be carriers of the disease, produce normal calves, yet never abort. Other cows, though exposed to the disease, have a high degree of resistance and do not become infected. These situations may contribute to negligence and carelessness in controlling the disease.

Brucellosis is destructive and treacherous. Consult a good veterinarian at the first sign of trouble, because each herd is a different problem. He will assist you to work out the best plan to follow in combating the disease.

Much of the spread of the disease can be traced to trading cattle. Buy only breeding stock on which an official health certificate has been issued and subject to retest. Keep purchased cattle isolated until after retesting.

Test the entire herd after a calving period if suspicious of any trouble. Test replacement heifers under eight months purchased or bred on the farm. Vaccinate if clean. Sell if not clean.

Control Lice

Cattle housed close in barns usually become lousy. Cattle in pasture seldom have lice. When you see cattle that rub on feed bunks, posts, fences, and the like suspect them of being lousy. In some cases they may rub off patches of hair exposing a rough appearing skin. You can see lice more easily in mid-winter or early spring because they are more numerous. Treatments can be made safely then, too, making it unnecessary to wait until spring.

Some lice are blood suckers and others are of the biting types. Creosote dips will kill those that suck blood only.

Use ½ pound of five percent rotenone powder to twenty-five gallons of water for best control. Spray animals until they are wet to the skin all over. A high pressure sprayer does best job.

Cattle housed to be outdoors as they choose in winter will often stay out in rain or snow. Some judgment in choice of a good day in winter and spraying such cattle should cause no concern. Dusting is less effective than spraying.

Repeat any treatment you use at two week intervals, because eggs present at first treatment will not be affected and will hatch allowing lice to continue to multiply.

Pink Eye Seems on the Increase

Pink eye is an infectious disease more prevalent when cattle are on pasture in summer and in feeder cattle shipped into Ohio in

the fall. Confining the infected cattle in a dark stall may be the only treatment necessary. Mild cases may soon run their course. Severe cases may cause blindness.

Germs may be spread by flies. Infected eyes have a watery discharge. Eyelids swell and membranes in the corner take on a pinkish appearance. Later the eye has a milky appearance.

Eyes are sensitive to light and the infected animal tends to close its eyes. There are many home remedies such as washing and cleansing the eyes with a boric acid solution. Use one ounce of boric acid to two quarts of water. Secure ten percent argyrol and apply two or three drop in the eye two or three times daily. Some cattlemen use a five percent sulfathiazole ointment. Some veterinarians now recommend a new solution that is sprayed on with an atomizer type sprayer. The new treatment is easy and seems effective.

Treat Ringworm to Halt Spread

Ringworm is a fungus parasite, mildly contagious, which may spread to other animals. Young cattle are more susceptible than older cattle; and ringworm occurs more often during the winter and spring.

Round, rough, hairless patches about the head, neck, and shoulders may identify ringworm. Affected area usually is less than two inches in diameter.

Wash the area thoroughly with soap and water to remove the scaly rough material. Then, paint the area daily with tincture of iodine until it heals.

Warts Are Unsightly—Not Dangerous

Warts often appear on young cattle—usually about their heads, necks, and shoulders. Warts are contagious and may spread through the skin by contact with warty animals or by rubbing against feed bunks, buildings, and posts previously used by an infected animal. Often, warts disappear without treatment.

Daily applications of sweet oil, castor oil, or olive oil will remove many warts. Clip off those that are small at the base with scissors or a sharp knife or tie them off with a silk thread or rubber band. Then paint the root with tincture of iodine.

Warts may warrant veterinary attention occasionally. It may be necessary to vaccinate.

Stomach and Intestinal Worms

It is a mistake to assume that beef calves do not have stomach or intestinal worms. They may not cause early spring calves that are well grown, strong, and vigorous to be noticeably retarded in growth. Plenty of milk and good pasture may reduce worm effects.

Late summer calves seem to be more susceptible. Worm eggs are passed in droppings and picked up by the calf. Number of

worms increases with short pasture. Young calves, getting limited amounts of milk are not able to throw off effects of worm development in the digestive tract.

Use copper sulphate dissolved in water for stomach worm control. Nicotine sulphate is effective against tape worms as well as stomach worms. Combining them is effective.

Strength of dosage varies with age and size of the calf. Do not treat young calves at all. Consult your veterinarian for the strength of mixture and amount of dosage to give each animal.

Pneumonia Is Not Well Understood

Pneumonia outbreaks seem to be associated with management problems. Calves and young cattle are most susceptible; and early spring and late fall are the most likely seasons. Calves shipped in from the South or West often are victims.

Proper housing offers partial prevention. Cattle of all ages can withstand cold temperatures and weather changes fairly well, but they need some protection against high winds and cold rains. Try to provide a barn or shed open to the east or south or an L-shaped structure open on two sides with an adjacent lot. You will have less trouble if calves can be indoors or outdoors as they choose. Avoid overcrowding young cattle in otherwise satisfactory quarters. Pneumonia seems to be more common in wet, cold, dirty barns. Drafts or a lack of ventilation may be contributing causes.

Tendency is to put young cattle in a barn in order to be good to them. Then as weather changes occur or the daily chores are done, workers open and close barn doors accordingly. If you pen young calves in a barn and try to control ventilation and light by opening and shutting doors, you will create conditions that are wrong as many times as right.

Two Kinds of Calf Scours

Young beef calves may scour if they get too much milk or milk that is too high in butterfat. Watch the feeding of the cows.

There are a number of causes of scours in young beef calves on feed. It is better to use preventive measures than control measures. Scouring indicates that for some reason there are too many harmful bacteria in the digestive tract. It may be caused by improper feeds or feeding practices. This form is not serious. Locate the cause by reviewing changes made in the ration—including hay. Often you may need only to change the ration to relieve the trouble.

A highly infectious scours—white scours—sometimes takes a heavy toll of calves within ten days after they are dropped. Germs are associated with unsanitary premises. If cows must calve indoors be sure the calving quarters are clean and well-bedded.

Good management calls for breeding so calves will be dropped when cows are on pasture, away from barns and barn lots. White scours seldom is troublesome on pasture.

Cattle Have Coccidiosis Too

Suspect this disease when you see masses of blood-clots in droppings. Coccidiosis occurs with feedlot cattle occasionally.

An intestinal protozoa causes the disease. It enters the body from previously contaminated feed or water. The protozoa locates in the intestinal tract, damaging the walls of the intestine, and causing severe bleeding. For effective control give sulfa drugs under the direction of a veterinarian. Protect the water supply from further contamination and provide well-bedded quarters to help prevent the disease from spreading.

Kill Cattle Grubs

Cattle grubs are the larvae of the ox warble. In midwinter the grubs first appear as lumps on backs of cattle. These grubs come from eggs of heel flies, laid on legs of cattle when on pasture. When the eggs hatch, the larvae enter the animal through the skin and travel in the flesh. Months later the full grown larvae reach the backs of animals.

Losses can be heavy due to slower rate of gain, damage to the hide and the beef carcass. Be alert to destroy grubs.

Treatment is to use three ounces of five percent rotenone powder, one ounce of soap flakes, and one quart of water to make a liquid for spraying or washing the cattle. Wet the entire area where the lumps first appear. Then treat every two or three weeks at least four times or as long as new lumps appear. Each treatment will require from one-half to one pint of liquid for each animal. It is not necessary to squeeze the grubs out. They will die and be absorbed.

Do not use DDT.

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